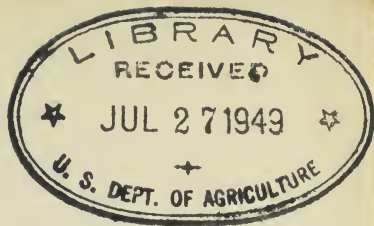


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A Cheap and Effective Home-made Plank Drag

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INTRODUCTION.

The plank-drag or "Clod masher" as it is sometimes aptly called, is doubtless, next to the plow and harrow, the most efficient implement that can be used in fitting the seed bed for immediate use. For the purposes for which it is particularly intended, no other implement will take its place. Yet this simple contrivance, which is used on nearly every farm on the mainland, is comparatively unknown in Hawaiian agriculture.

USE OF THE PLANK-DRAG.

When land breaks up "cloddy" from whatever cause, conditions are often such that no amount of harrowing with spike tooth, disc, Acme or any other kind of harrow will pulverize the soil. Especially is this the case when the soil becomes hard and dry. It is at this stage of tillage that the plank-drag becomes invaluable. Unless the land is too moist, the plank-drag should follow the harrow immediately. This will increase its efficiency materially by reason of the freshly turned up clods pulverizing much more easily than when exposed to the sun and drying winds,

which bake and harden the clods until it becomes almost impossible to demolish them by any ordinary means.

In going over the ground with the drag a half lap should always be taken, and if necessary, the ground should be cross dragged. The drier and harder the clods the greater should be the weight applied. A 4 x 8 foot drag made of two inch planks weighs about 250 pounds. If the driver "rides" considerable weight will be added. However, it is sometimes advisable to add a boulder or two to give the necessary weight to crush large hard

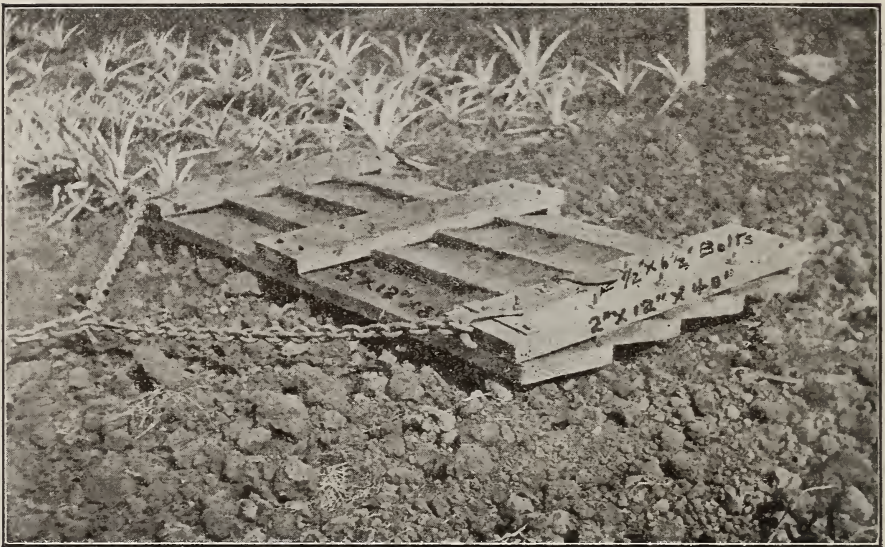


Fig. 1. Plank Drag, showing details of construction.

clods. Care should be taken not to add too much weight when the soil is moist since in so doing the soil may become compacted to an extent far greater than any beneficial results that might otherwise have accrued. The drag shown in the illustration, Fig. 1, is 40 by 96 inches in size including 2 inch lap of planks. It is easily handled by two medium size horses. Four to six acres a day can readily be covered when giving half a lap, which is virtually going over the ground twice.

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CONSTRUCTION OF THE PLANK DRAG.

Tough, hardwood planks are of course the most durable material to use for making the drag, but the writer has found 2 inch plank of the common northwest pine quite satisfactory. This timber is cheap and is easily worked. With ordinary use a pine drag will last two or three seasons. If the edges of the projecting plank are protected with flat strips of iron, or angle iron, which is better still, and the whole is well bolted, the drag may last from five to ten years.



Fig. 2. Plank Drag in use.

The writer has had three years of the hardest kind of usage out of an "unshod" 2 inch pine drag but believes it would be economy to face the edges of the plank with iron.

The following directions should enable any farmer to make a first class drag in less than half a day, and at a cost not exceeding \$3 for material, Honolulu prices.

Select four pieces good tough pine or other timber, eight feet long, twelve inches wide and two inches thick. Lay these out on a level surface, letting each plank lap two inches along its

entire length as shown in the illustration. Hold in this position by driving a few spikes along the lapped edges. Now cut three pieces of the same kind of plank into forty inch lengths for cross pieces. These are best "let in" an inch or so, as shown in the end view of Figure 1. This greatly increases the rigidity of the whole structure. This is easily done by laying the cross pieces in place and using them as a guide for the saw. When the projecting edges of the plank have been sawed into an inch or two, the obstruction is quickly chiselled out and the cross pieces set in. Pin down with a couple of spikes and then bore holes to receive one half inch bolts as indicated in the illustration. Carriage bolts $\frac{1}{2}$ x $6\frac{1}{2}$ inches are best and these should be supplied with large washers at the nut end. Clevises and a chain for attaching the whiffletree may now be added as indicated in the illustration. The drag is then completed unless it is decided to face the edges with iron. If this is done, the holes in the iron should be placed so that the bolts holding the plank together will also answer to secure the iron strips.

The following material will be needed to make a drag such as is outlined above:

- 4 pieces 2" x 12" x 8'
- 3 " 2" x 12" x 40"
- 30 carriage bolts $\frac{1}{2}$ " x $6\frac{1}{2}$ "
- 30 iron washers.

The iron strips for facing the edges of the planks may be made from old wagon tires. A chain and clevises can usually be found about the place, but if it is necessary to purchase everything that has to enter into the complete drag the cost will be about \$5.

Figure 2 shows the drag in use as a clod masher, leveler and smoother, making ready the land for marking off for corn.